IRIS ENSATA — A FIBRE PLANT

C. REGEL – Baghdad

There is no doubt that there are many plants which contain stem or root fibres that may be utilized. Many of these plants grow wild in Europe or North Africa, or may be cultivated in these areas. See REGEL (1945) where further references are given.

During my visit to the well known private botanic garden at Hatzendorf, Styria (Austria) of the late Dr. F. LEMPERG, Honorary Member of the Royal Horticultural Society, London, I found a very luxuriantly growing species of *Iris*, which, according to the determination of Dr. LEMPERG, was *Iris ensata* Thunb. The plant was growing there on both fertile humus and on infertile sand.

The proprietor of the garden used the leaves of this plant instead of raffia to tie up the garden plants and asked me to investigate the possibilities of using these fibres for technical purposes. I therefore sent a bundle of the leaves to Professor F. TOBLER, formerly of Dresden, then editor of the journal 'Faserforschung', who kindly investigated the matter and sent the following reply, which I have translated into English.

1. 'The margins of the leaves are provided with large fibre bundles of solid structure, the upper and lower sides of the leaves moreover have regularly spaced, sickle-shaped bundles, which are less rigid than the bundles on the margins.

2. Disintegration of the well dried leaves was tried with 1,5% NaOH. Treatment for $\frac{1}{2}$ hour under 2 atmospheres pressure was unsuccessful, and a similar result was obtained after one hour at 1 atmosphere. The fibres were too short. A better result was obtained using 5% Ca $(OH)_2$ and treating the leaves for $\frac{1}{4}$ hour at 1.5 atmospheres. The fibre however was insignificant and dirty grey, but pretty regular and had a tearing length of 20.8 km. The average yield of fibre was 10%, the yield varying in different solutions from 8% to 13%. This is not unfavourable but I do not believe the cultivation of the plant would pay'.

Iris ensata is native of Western and Eastern Siberia, the Far East and central China. It also occurs in Afghanistan, Mongolia, Tibet, China and Japan being first described from Japan by Thun-

berg. The plant grows naturally in sandy places, near the sea, on meadows, and in the steppe on loamy-salt places and on salt meadows.

The leaves of the *Iris* have some importance as food, especially on salty soils. Moreover the presence of the many mechanical fibres in the leaves suggests the possibility of using the plant as a source of fibre for cordage and coarse fabrics.

Iris ensata is a wild and not a domesticated plant. There is no doubt that by means of selection it would be possible to improve the quality and quantity of the fibres and to obtain finally of fibre plant suitable for cultivation on soils where other fibre plants will not grow.

REFERENCES

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REGEL, C. Pflanzen in Europa liefern Rohstoffe, Stuttgart. 1945.

RÉSUMÉ

L'*Iris ensata*, originaire de l'Afganistan, du Tibet, de L'Asie Centrale et de l'Extrême Orient contient dans ses feuilles des fibres qui peuvent être utilisées pour ficelles, cordes etc. Dans le jardin botanique du feu le Dr. LEMPERG à HATZENDORF, Styrie, Autriche, la plante poussait très bien et les fibres furent utilisées comme les fibres de Raphia. La plante croît très bien sur des sols peu fertiles, sur lesquels d'autres plantes textiles ne poussent pas. L'auteur donne une expertise faite par le Professeur F. TOBLER.